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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,540	03/04/2005	Hiroyuki Makino	2830-0174PUS1	6396

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EXAMINER
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LOPEZ, FRANK D

ART UNIT	PAPER NUMBER
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3745

DATE MAILED: 12/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/501,540

Applicant(s)

MAKINO ET AL.

Examiner

F. Daniel Lopez

Art Unit

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) 2-4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/16/04;10/15/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claim is 1 and are rejected under 35 U.S.C. § 103 as being unpatentable over Kubilos in view of Scott et al, Hodgkinson, Bayer et al, Madsen, Hirai et al and Stoppck et al. Kubilos discloses a swash plate type motor comprising an axial piston cylinder group arranged annularly in, and surrounding an axis of, a rotor (42), which is rotatably supported in a casing (35); the rotor being rotated by supplying high pressure fluid to an expansion chamber (77) defined between a piston (55, 71) and a cylinder bore (49) in the rotor; wherein sliding surfaces of the piston and cylinder bore are lubricated with oil (via 81); wherein the piston includes a top part (75) exposed to the high pressure fluid, an second end part (60) abutting the swash plate (57), a middle part (12) between the top and second end part and in sliding contact with the cylinder bore and a first end part (20) between the middle part and the second end part; but does not disclose that the high pressure fluid is a high temperature steam; that the cylinder bore is formed by a cylinder sleeve; that the top part is formed from a heat-resistant and corrosion resistant material; that the end parts are formed from a material having high surface pressure resistance and the middle part is formed from a material having high abrasion resistance.

Scott et al teaches, for a swash plate type machine comprising an axial piston cylinder group arranged annularly in, and surrounding an axis of, a rotor (including 1), which is rotatably supported in a casing (3, 10); the rotor including an expansion chamber defined between a piston (28) and a cylinder bore (formed by 51) in the rotor;

wherein sliding surfaces of the piston and cylinder bore are lubricated with fluid (via 31); that the cylinder bore is formed by a cylinder sleeve (51). The purpose of using a sleeve is usually to form the rest of the rotor of less costly material.

Since Kubilos and Scott et al are both from the same field of endeavor, the purpose disclosed by Scott et al would have been recognized in the pertinent art of Kubilos. It would have been obvious at the time the invention was made to one having ordinary skill in the art to form the cylinder bore of Kubilos by a cylinder sleeve, as taught by Scott et al, for the purpose of forming the rest of the rotor of less costly material.

Hodgkinson teaches, for a swash plate type motor comprising an axial piston which includes a top part (22) exposed to the high pressure fluid; that the high pressure fluid can be a variety of fluids, including high temperature steam.

Since Kubilos discloses a specific high pressure fluid for a swash plate motor, and Hodgkinson teaches alternate high pressure fluids for a swash plate motor; it would have been obvious at the time the invention was made to one having ordinary skill in the art to use high temperature steam for the high pressure fluid of Kubilos, as taught by Hodgkinson, as a matter of engineering expediency.

Bayer et al teaches, for a swash plate type motor comprising an axial piston (49) which includes a top part exposed to the high pressure fluid, a middle part in sliding contact with the cylinder bore, and a second end part (37) between the middle part and the wash plate; that the second end part abuts a swash plate (25, 31), with no intervening first end part; that the end part is formed of metal and the middle and end parts are formed from a ceramic; wherein the ceramic has good wear resistance (column 1 line 51-57).

Since the connection between the piston and swash plate of Kubilos and Bayer et al are interchangeable in the swash plate art; it would have been obvious at the time the invention was made to one having ordinary skill in the art to eliminate the second end part of Kubilos, such that the first end part abuts the swash plate, wherein the first end part is made of metal, as taught by Bayer et al, as a matter of engineering expediency.

Madsen teaches, for a motor comprising an axial piston which includes a top part (2, 12) exposed to the high pressure steam; that the top part is formed from an

insulating material (column 2 line 22-25), for the purpose of meeting demands of higher working pressure and temperature (column 1 line 4-6).

Hirai et al teaches, that ceramic is a heat insulating material (e.g. column 6 line 33).

Stoppck et al teaches, for a swash plate type motor comprising an axial piston which includes a top part (22) exposed to the high pressure fluid, a middle part between the top and end parts and in sliding contact with the cylinder bore; and a first end part (20) between the middle part and the swash plate; that the middle part is formed from a material having high abrasion resistance (column 2 line 7-10).

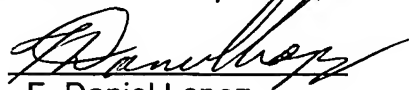
Since pistons of Kubilos and Bayer et al are interchangeable in the swash plate piston art; it would have been obvious at the time the invention was made to one having ordinary skill in the art to make the top and middle part of Kubilos of ceramic, as taught by Bayer et al, Madsen, Hirai et al and Stoppck et al, for the purpose of making the top part of a heat insulating material, to meet demands of higher working pressure and temperature, and to make the middle part of high wear resistance.

### ***Conclusion***

Claims 2-4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan Lopez whose telephone number is 571-272-4821. The examiner can normally be reached on Monday-Thursday from 6:10 AM -3:40 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Look, can be reached on 571-272-4820. The fax number for this group is 571-273-8300. Any inquiry of a general nature should be directed to the Help Desk, whose telephone number is 1-800-PTO-9199.

  
F. Daniel Lopez  
Primary Examiner  
Art Unit 3745  
November 28, 2006